



Edgewood Area - Aberdeen Proving Ground, Maryland 21010-5424

U.S. Army Soldier and Biological Chemical Command

## Surface Spectroscopy and Electron Microscopy Laboratory ("MicroLand")

### FEATURES:

- PHI 5400 X-Ray Photoelectron Spectrometer
- PHI 660 Auger Electron Spectrometer
- Secondary Ion Mass Spectroscopy
- Scanning Electron Microscopy and X-Ray Spectroscopes
- Electron Microscopes (JEOL 35 CFM, JEOL 6300F, Hitachi H7000 Transmission EM)
- Digital Instruments Nanoscope II Scanned Probe Microscope

The Edgewood Chemical Biological Center operates and maintains a Surface Spectroscopy and Electron Microscopy Laboratory (known as MicroLand) for biological research and forensics, specializing in morphological and compositional characterization, surface analysis, and fine particle technology. MicroLand has the capability to determine the elements of materials in bulk or in particular patches. MicroLand is a valuable resource for product development. For example, if there is a problem with mask lenses being scratched, scientists and technicians can determine the source of the problem and possible solutions. It is also instrumental in the development of methodologies, and in the analysis of unknowns.



Using an array of equipment, scientists and technicians can determine how bacteria bond together and react to different chemical stimulus or radiation. Electron energies are measured and provide qualitative and quantitative information about the elements in the surface and the binding states of electrons. Surface analysis and elemental analysis reveal how bacteria are joined from the surface down. The laboratory can also perform a higher resolution surface analysis, as opposed to bulk. A number of surface spectrometers and scanning electron microscopes with unique capabilities are on hand to perform required analysis (see FEATURES above).

Most companies manufacturing products can benefit from work performed at MicroLand. Scientists and technicians can examine virtually any product or material, such as asbestos, the size and shape of food particles, paint and pigments to ascertain the ability of a substance to coat, frozen dairy products to study the composition of cheese or milk, or sampling for industrial standards. MicroLand's staff possesses the ability to operate eight pieces of equipment as a unit to ensure that appropriate equipment is used as required for each project. They have the equipment and instruments to analyze numerous samples, and the expertise to answer and interpret bacteria-related questions and data. Anyone seeking to develop a product can use this laboratory to examine the product's composition.



For additional information on this facility, E-mail [research.technology@sbccom.apgea.army.mil](mailto:research.technology@sbccom.apgea.army.mil).

For information on Technology Transfer applications, please contact us by E-mail ([technical.outreach@sbccom.apgea.army.mil](mailto:technical.outreach@sbccom.apgea.army.mil)) or by fax to 410-436-6529.